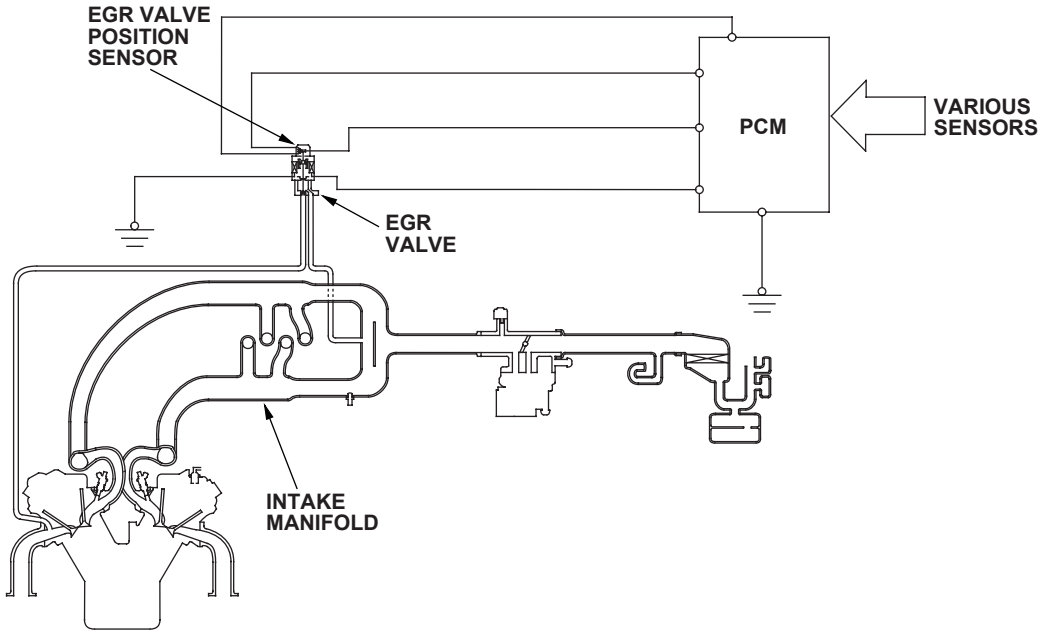
DTC P0401: Exhaust Gas Recirculation (EGR) Insufficient Flow



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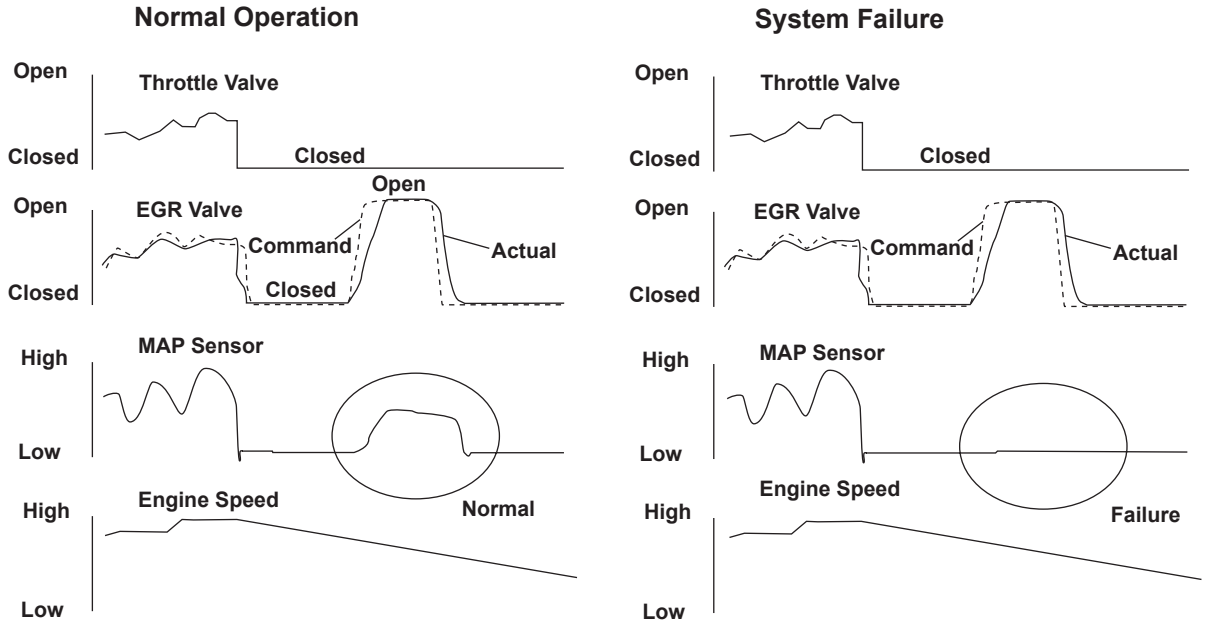

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General Description

The exhaust gas recirculation (EGR) system reduces oxides of nitrogen (NOx). NOx is generated by high combustion temperatures. The EGR system lowers peak combustion temperatures by recirculating exhaust gas into the air/fuel mixture, thus reducing NOx. The manifold absolute pressure (MAP) sensor detects the intake manifold pressure (vacuum) and the powertrain control module (PCM) determines if the amount of exhaust gas recirculation is sufficient. When starting to decelerate with the throttle valve closed, the EGR valve is closed. If the intake manifold pressure changes only slightly while the EGR valve opens fully and closes again within a specified time period, a malfunction is detected and a DTC is stored.

Monitor Execution, Sequence, Duration, DTC Type

Execution	Once per driving cycle
Sequence	"EGR valve insufficient lift" is OK
Duration	3 seconds or more
DTC Type	Two drive cycles, MIL ON

Enable Conditions

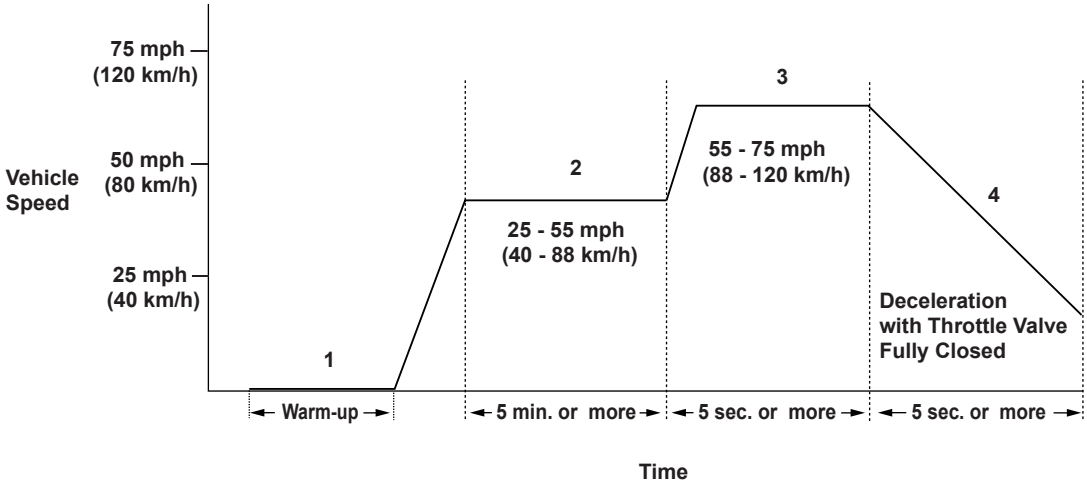
Condition	Minimum	Maximum
Engine coolant temperature	167ºF (75ºC)	—
Engine speed	1,150 rpm	2,250 rpm
MAP value	14 kPa (99 mmHg, 3.9 in.Hg)	—
Vehicle speed	31 mph (50 km/h)	—
Throttle position	Fully closed	
Fuel feedback	During deceleration	
No active DTCs	PCM, MAP, CKP, ECT, TP, EGR, BARO, IAC, VSS	
Other	Test-drive on a flat road	

Malfunction Threshold

The MAP sensor output varies by the value in the table.

Engine speed	The change of MAP value	
	Sea level: 99 kPa (749 mmHg, 29.4 in.Hg)	High altitude: 61 kPa (459 mmHg, 18.0 in.Hg)
1,150 rpm	3 kPa (25 mmHg, 1.0 in.Hg) or less	3 kPa (19 mmHg, 0.8 in.Hg) or less
2,250 rpm	2 kPa (17 mmHg, 2.3 in.Hg) or less	1 kPa (14 mmHg, 1.9 in.Hg) or less

Driving Pattern



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1. Start the engine. Hold the engine at 3,000 rpm with no load (in park or neutral) until the radiator fan comes on.
2. Drive the vehicle at a speed between 25 - 55 mph (40 - 88 km/h) for 5 minutes.
3. Then, drive at a steady speed between 55 - 75 mph (88 - 120 km/h) for at least 5 seconds.
4. Decelerate with the throttle valve fully closed for at least 5 seconds.

- If you have difficulty duplicating the DTC, retest after turning off electrical components such as the audio system and A/C, and try a different gear position.
- Drive the vehicle in this manner only if the traffic regulations and ambient conditions allow.

Diagnosis Details

Conditions for illuminating the MIL

When a malfunction is detected during the first drive cycle, a Temporary DTC is stored in the PCM memory. If the malfunction recurs during the next (second) drive cycle, the MIL comes on and the DTC and the freeze frame data are stored.

Conditions for clearing the MIL

The MIL will be cleared if the malfunction does not recur during three consecutive trips in which the diagnostic runs.
The MIL, the DTC, the Temporary DTC, and the freeze frame data can be cleared by using the scan tool Clear command or by disconnecting the battery.